REMARKS

Claims 1, 2, 7, and 13-14 have been amended. No claims have been canceled. New claims 21-24 have been added. Claims 1-24 are pending.

Claims 1-16 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Fu (U.S. Patent No. 6,370,271). Claim 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fu. Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fu in view of Hauso (U.S. Patent No. 5,583,614). Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fu in view of Funada (U.S. Patent No. 5,257,119). These rejections are respectfully traversed.

Claims 1 and 13 recite, *inter alia,* "wherein said multiple magnification reference arrangement data corresponds to magnification levels no greater than a level where a human eye can distinguish between an original and a magnification."

Claim 2 recites, *inter alia,* "an arrangement data generating unit which stores the position data representing the arrangement of each of the target pattern elements at a plurality of magnifications, each of said plurality of magnifications being no greater than a level where a human eye can distinguish between an original and a magnification."

Claim 7 recites, *inter alia,* "An image processing device, for detecting arbitrary images at multiple magnification levels each below a threshold where said magnification can be readily identified as a magnified version of an original by a human eye, the device comprising: ... a pattern detection means to detect relative positions of said plurality of input pattern elements compared with a reference arrangement data, at said multiple magnifications, of each of said target pattern elements in order to recognize whether said input image includes said target pattern."

Claim 14 recites, *inter alia,* "determining reference arrangement data for each of said target pattern elements at a plurality of magnifications, said plurality of magnifications being no greater than a level where a human eye can distinguish between an original and a magnification."

Fu discloses an image recognition system. Fu discloses two algorithms for performing pattern matching. The first algorithm is suitable for implementing in software and is illustrated by the flow chart of Fig. 6. The second algorithm is suitable for a hardware implementation and is illustrated by the flow charts of Fig. 10 and Fig. 6. Both algorithms are row-based algorithms and operate on a limited number rows at any given time. See column 6, lines 28-32.

Now referring to Fig. 6, the first algorithm operates by quantizing approximately 8-12 rows from the input image and storing the quantized data into one line buffer per pattern to be detected (Steps 601-602; See column 7, lines 1-27). In steps 603-607, edge filtering and curve detecting units are used to determined whether the quantized row data includes a pair of curves which might be a part of a basic image. If so, the radius of the circles formed by the curves are calculated and added to a feature list. If not, a next group of rows are analyzed using steps 601-607. If a portion of a circle has been detected, additional rows of data are aggregated to the existing set of rows until the full circular element can be contained within the span of rows.

At steps 608-610, the circular portion of the basic pattern has been detected and the central area is checked for the required central image by comparing the data with one or more templates. Significantly, Fu discloses using multiple templates, which can be suitable for detecting multiple images, but each template is identical in size. Column 8, lines 17-41. A matrix type process is used to account for rotation of the

central image data. Now also referring to Fig. 10, it can be seen that the second algorithm operates somewhat differently from the first algorithm at the beginning, but after step 1006, which corresponds to the point where the circular portion of the basic image is detected, the second algorithm identically to steps 608-610 of the first algorithm.

In both algorithms, if different scales of a same pattern is to be detected, the features list must include separate definitions for each (i.e., discrete) scaling factor. For example, Fu discloses:

> Furthermore, if the circle checker 54 needs to be scale invariant, then the structural rules database 53 will contain circle geometry information for each of the scales at which the circles need to be detected. For example, if three patterns, x, y, and z, are targeted for detection then structural rules database 53 will have three sets of data. Furthermore, if say, these pattern have to be detected when scanned input is at 100% scale, 75% scale, 50% scale, 125% scale, and 150% scale, then an additional four sets of data for each of the patterns is needed, i.e., the total number of datasets in structural rules database 53 would be fifteen.
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> Fu, at column 7, lines 47-58 (emphasis supplied).

In the above quoted passage, Fu states that each scale of a pattern to be detected requires its own definition. Further, Fu only discloses use of scaling factors (for both reduction and magnification) which are multiples of 25%. At these magnification/reduction levels, a copy of the image differs so much from the original that a person can easily recognize the scaled image from the original image.

The pending claims have been amended to emphasis that the present invention is capable of detecting arbitrary images in a magnification range such that a human eye cannot distinguish between the original image and the (slightly) magnified

image. This is not disclosed or suggested in Fu, where the magnification levels are multiples of 25%. Such magnification level increments are so large that a person can easily distinguish between the original image and the magnified image. Accordingly, Fu does not disclose or suggest the above quoted portions of independent claims 1, 2, 7, 13, and 14.

The Office Action additionally cites to Hasuo and Funada. However, these references, whether taken alone or in combination, also fail to teach or disclose features corresponding to the above quote limitations of the independent claims.

New claims 20-24 specifically recite magnification levels of "no greater than approximately 15%." This feature is also no taught or suggested by the prior art of record.

Accordingly, independent claims 1, 2, 7, 13, and 14 are believed to be allowable over the prior art of record. Each of the depending claims (i.e., claims 3-6, 8-12, and 15-24) are also believed to be allowable over the prior art of record for at least the same reasons as the independent claims.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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